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Explaining regional differences in self-employment rates in Spain.

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Abstract:

Spain has one of the highest self-employment rates in the context of the EU. However, this rate varies among regions from a 13% to a 20%. This paper examines the determinants of regional variations in self-employment rates in the Spanish autonomous communities. A fixed-effects regression model is estimated in order to study the influence of the demographic and industrial composition of employment, the unemployment rate and the interest rates. Preliminary results show the relevance of the educational level of the workforce as well as the significance of the labour market situation.

JEL codes: J23,

Keywords: self-employment, regional differences, panel data

1. Introduction

There are interesting differences in self-employment rates among countries and also among regions within the same country. Explanations of these differences are usually related to institutional factors, unemployment or the industrial distribution of employment.

Spain has one of the highest self-employment rates in the context of Europe. However, little research has been dedicated to this field (in a microeconomic or a macroeconomic approach). So the aim of this paper is to explain the regional differences in the self-employment rates of the Spanish autonomous communities.

The paper is set out as follows: the next section is dedicated to reviewing the main results in the study of self-employment; section 3 describes the evolution of the self-employment rate in Spain and the existing differences among regions; section four states the data to be used in the empirical analysis and the main reasons that relate the potential explanatory variables to the self-employment rate. The following section shows the results obtained in the estimation of the regression models. Finally, a review of the principal observations concludes the article.

2. A review of the literature about self-employment

Several authors have carried out research on self-employment from different perspectives. Some have studied the composition of self-employed workers and the transitions to and from this type of work from a microeconomic perspective (Evans and Leighton, 1989; Blanchflower and Meyer, 1994; Alba-Ramirez, 1994; Taylor, 1999; Carrasco, 1999; Kuhn and Schuetze, 2001; and Moore and Mueller, 2002). Others have analysed the causes of self-employment growth from a macroeconomic point of view, especially the relationship between self-employment and the economic cycle. Some of the evidence supports the view that the self-employment rate moves pro-cyclically while other researchers contradict this finding and other studies do not perceive a clear relationship (Blau, 1987; Staber and Bögenhold, 1991; Meager, 1992). Other authors have analysed the differences in self-employment rates across countries. Acs *et al.* (1994) analyze the differences in self-employment rates and self-employment trends for twenty-one OECD countries from 1966 to 1987. Their results indicate that the stage of economic development reached explains the existing diversity.

Some authors have linked self-employment to employment protection legislation. The hypothesis is that employers may attempt to avoid the effect of regulations on hiring and firing employees by contracting-out work to self-employed contractors. However, Robson (2003) does not find evidence for a positive relationship between employment protection legislation and self-employment, contrary to the findings of previous studies (OECD, 1999).

Parker and Robson (2004) show the variety in self-employment rates and trends in twelve OECD countries over the period 1972-1996. Their analysis suggests the relevance of tax-benefit variables (the average income tax rates affect positively while the benefit replacement rate is negative) and the female labour-force participation rate in order to explain the evolution of international self-employment

rates. Torrini (2005) carries out a similar analysis for twenty-five OECD countries during a period of twenty-two years, including institutional factors. His findings suggest that these kinds of variables explain the disparities more than industry distribution of employment. The size of the public sector has a negative impact while tax evasion opportunities have a positive impact.

Although the regions have the same macroeconomic environment there are also relevant differences in self-employment rates across regions in the same country. Several authors have studied these differences. Two papers can be cited with respect to the UK, where the rise in self-employment was very high. Robson (1998) uses pooled cross-section time-series data to study the determinants of male self-employment in the UK regions for the period 1975-1993. The estimated models indicate that certain industries (Agriculture, Construction, Distribution, Hotels, Catering and Repairs, etc.) favour self-employment. Regional differences in social, economic and cultural factors explain inter-regional variation in self-employment but, at the same time, an important part of the rise in the aggregate rate of self-employment is due to macroeconomic factors, impacting equally on all regions. Georgellis and Wall (2000) use data from the British regions for 1983-1993 to study the determinants of regional differences in entrepreneurship. Their results indicate that the relationship between self-employment and relative unemployment is hill-shaped. Labour-force characteristics and industry composition also explain differences in regional entrepreneurship. For instance, women are less likely to be self-employed so the female share of the labour force has a negative effect on self-employment.

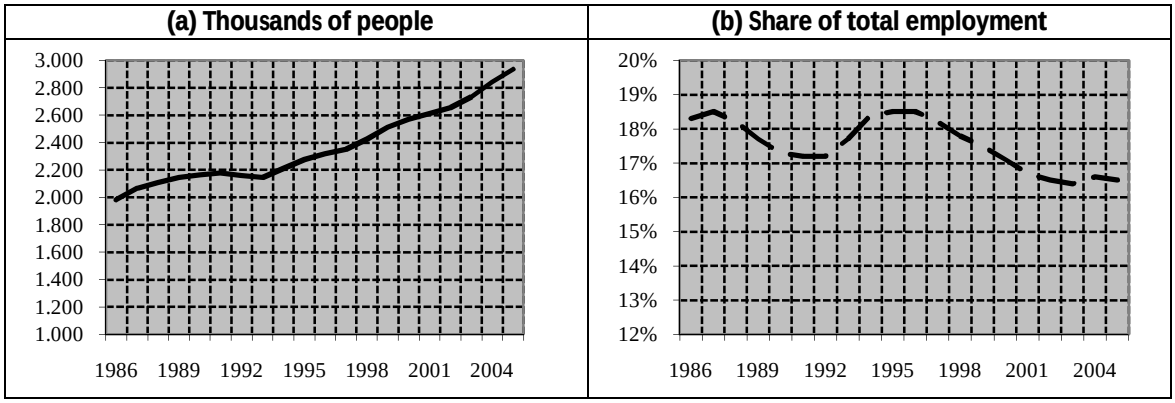
To sum up, we can say there is a multiplicity of reasons to explain the evolution of self-employment and the differences among countries and/or regions. However, unemployment and the distribution of employment (by sex, age, level of education and by sector) are the usual explanatory factors.

3. Evolution of self-employment in Spain

Self-employment is almost 20% of employment in Spain. As can be seen in graph 1(a), during the period 1986-2005 it increased by almost a million people. We notice that the growth was higher in 1993-2005 than in 1986-1992. This curve corresponds to the evolution of the Spanish economy with the highest period of job creation from 1995 onwards.

In graph 1(b) we can distinguish three periods in the self-employment rate: a decrease from 1989 to 1992, followed by an increase during 1993-1996 and another phase of decline. The increase in self-employment rate coincides with the increase in unemployment during the period 1992-1994 (after a decrease during the second half of the 80's, the unemployment rate reached a maximum of 24.1% in 1994).

Graph 1. Self-employment in Spain, 1986-2005



Source: MTAS (several years).

There are interesting regional differences among the autonomous communities. In 1986 the self-employment rate ranged from 14.5% to 24.5%. This variety was maintained during the analysed period and the majority of the regions also kept their position. So Madrid, Andalucia and Canarias are the autonomous communities with the lowest rates while Baleares, La Rioja and Castilla La Mancha present the highest ones.

Table 1: Self-employment rates in the Spanish regions

CCAA	1986	1990	1995	2000	2004
Madrid	14,5	11,9	13,7	13,3	12,9
Andalucia	15,8	15,3	16,3	14,8	14,7
Canarias	16,8	17,1	15,6	13,8	13,9
Extremadura	16,9	18,0	18,2	16,8	17,1
Navarra	17,2	16,8	19,5	17,9	16,7
Galicia	17,3	18,0	19,1	18,6	18,2
Cantabria	17,8	18,0	19,5	18,1	17,9
Asturias	17,9	18,1	18,9	18,6	18,0
País Vasco	18,5	19,6	22,1	20,6	19,7
Aragón	19,7	18,4	20,5	19,3	19,0
Comunidad Valenciana	20,0	19,4	20,0	18,6	18,2
Castilla y León	20,4	20,3	21,3	20,5	19,8
Murcia	20,5	20,0	19,9	17,3	16,6
Cataluña	21,0	18,2	19,8	17,5	17,2
Castilla La Mancha	21,4	20,0	21,8	20,8	19,8
La Rioja	21,8	20,0	21,1	19,4	18,8
Baleares	24,5	24,4	24,0	20,1	19,6

Source: MTAS (several years).

4. Data and possible explanations

As we have seen there are relevant differences among the self-employment rates in the Spanish regions although they have a common legal framework. So the aim of the paper is to analyze the determinants of regional differences in the self-employment rate in Spain. We have data for the seventeen Spanish autonomous

communities from 1986 to 2004. The dependent variable in the models is the self-employment rate. In order to estimate the determinants of differences in regional self-employment rates we include in our model variables that reflect the labour market conditions and also institutional factors. The previous literature on self-employment suggests several potential explanatory variables.

The unemployment rate is one of the most common variables used in the explanation of self-employment, although few studies have found significant relationships. Depending on the methodology, the data sets and the sample, the relationship between self-employment (rate or probability to enter) and the unemployment rate are different. From a macroeconomic point of view, the recession-push hypothesis suggests a positive relationship between unemployment and self-employment because, during a recession, unemployment acts as a catalyst, encouraging the unemployed to start up in business (Evans and Leighton, 1990; Bohenhold and Staber, 1991). However, a negative correlation is possible. Meager (1992) suggests a second relationship between unemployment and self-employment, labelled the pull hypothesis in the sense that when economic activity levels are growing (unemployment rate falls) more people would enter self-employment because their businesses are less likely to fail.

The proportion of long-term unemployed also can influence the self-employment rate. Cowling and Mitchell (1997) state that "it is the duration structure of unemployment which matters, not simply the stock of unemployed people", so a longer spell of unemployment can push unemployed into self-employment. From a microeconomic perspective and for Spain, Alba-Ramirez (1994) found that the duration of unemployment affects a worker's decision to enter self-employment. However, the long-term unemployed probably have a more difficult access to start-up capital (savings and/or loans) so it could be expected that if the proportion of long-term unemployed were smaller, the self-employment rate would be larger.

The demographic composition of the labour force is also included. The results obtained in several microeconomic studies indicate that women and young people are less likely to become self-employed (Blanchflower, 2000; Evans and Jovanovic, 1989; Evans and Leighton, 1989; Acs *et al.*, 1994), so the regions with a higher proportion of women and/or people under twenty-five years old would probably have a lower self-employment rate. Evidence on education is mixed: the least educated have high probabilities of being self-employed and there is also evidence that the most highly educated have high probabilities (Blanchflower, 2000).

Several authors have stressed the relevance of the industrial composition of employment (Acs *et al.*, 1994) in order to explain the evolution of self-employment rates. The proportion of small businesses is higher in services than in industry so a positive correlation is expected between self-employment and the proportion of employment in the services sector.

Finally, liquidity constraints are an important factor in explaining transitions to self-employment (Evans and Leighton, 1989; Cowling and Mitchell, 1997; Carrasco, 1999). In Spain the interest rate was high during the eighties and there was an important drop in the nineties. This fact could make the access to bank financial help easier, so it can influence self-employment rate.

5. Results

As we have said, we have data for the seventeen Spanish autonomous communities from 1986 to 2004. The model has been estimated using panel techniques and assuming fixed effects. To avoid potential econometric problems with a dependent variable that is limited to lie between 0 and 1, we define the self-employment rate as the logarithm of the ratio of the number of self-employed to the number of employees.

As we said before the considered independent variables are the unemployment rate, the proportion of long-term unemployed, the female activity rate, the share of active population under twenty-five years old, the educational level of population, the industrial composition of employment, the share of public employment and the rate of interest.

In order to estimate the effects of unemployment on self-employment we have tested several specifications of the models. As well as the unemployment rate we have also included the employment rate to avoid a break in the unemployment series in 2001, because a new definition of unemployment was considered in the Spanish Work Force Survey to adapt to the new European Commission regulation 1897/2000[1].

We have also included variables to consider the labour market reforms that affect the unemployment compensation system. We include the beneficiary rate, that is, the section of the unemployed receiving unemployment compensation. We include this variable because the reforms affected mainly the qualifying conditions of access to benefits (in terms of time of employment or duration of benefits) and less the rates of benefits[2].

In the model we consider that the current self-employment rate depends on the values of the considered independent variables for the previous period because there may be a delay between the time that individuals make the decision to enter self-employment and the time they become self-employed.

The coefficient corresponding to the employment rate is negative and significant as well as the proportion of long-term unemployment. On the contrary the coefficient for the proportion of fixed-term contracts is positive. So, good conditions of the labour market (a high employment rate or a small proportion of fixed-term contracts) contribute to reduce the self-employment ratio. But a higher percentage or long-term unemployment decreases the self-employment ratio. This result can

[1] Garrido and Toharia (2004) examine the consequences of the changes in the definition of unemployment. The authors state the difficulty to capture the complexity of the labour force activity and that unemployment is an unclear category of attachment to the labour market.

[2] See Cantó and Toharia (2003) for an analysis of the evolution and characteristics of the unemployment compensation system in Spain. Briefly we can state that in 1989 unemployment insurance is intensified for long-term unemployed (especially older than 45 years old); in 1992 and 1993 the time of employment duration is increased and the length and the level of the benefit are reduced; in 2002 the qualifying conditions are hardened

indicate the loss of human capital or the difficulties in access to financing for this group of unemployed people. When we include in the model the unemployment rate instead the employment rate the results lead to the same conclusions. The beneficiary rate has a negative impact on self-employment showing that a more limited unemployment compensation can favour transitions to self-employment.

The demographic composition of the labour force influences the self-employment ratio. With respect to the educational level of the workforce, coefficients are negative for all the groups except people with a university degree. Age seems to have no effect.

Table 2. Determinants of the self-employment ratio

	Coef.	**Std. Err.**	**Coef.**	**Std. Err.**
Trend	0,042*	0,024	0,093***	0,024
Female activity rate	0,211***	0,070	-0,120*	0,063
Employment rate	-0,704***	0,087		
Unemployment rate			0,125***	0,020
Long-term unemployment	-0,073***	0,026	-0,071**	0,028
% fixed-term contracts	0,045**	0,019	0,028	0,020
Population under 25	-0,089	0,088	-0,063	0,093
% workforce in services	0,139	0,123	0,274**	0,125
% workforce with primary qualifications	-0,121***	0,032	-0,116***	0,033
% workforce with secondary school certificate	-0,117***	0,030	-0,132***	0,031
% workforce with professional training	-0,046	0,029	-0,057*	0,030
% workforce with university degree	0,024	0,036	0,031	0,038
% employment in public sector	0,063	0,040	0,064	0,042
Rate of interest	0,019	0,014	0,031**	0,015
Beneficiary rate	-0,112***	0,021	-0,135***	0,021
Constant	-2,569	0,269	-2,165	0,266
σ_u	0,206		0,213	
σ_e	0,041		0,043	
ρ	0,961		0,960	
F test	135,83	0,000	121,24	0,000

The female activity rate has different effect depending on the specification used in the model. The significance of several variables also changes according to the model. We have to consider that, given the dimension of the panel, it is possible that variables were not stationary.

6. Summary and conclusions

Data show that Spain has one of the highest self-employment rates in the context of the European countries with relevant differences among regions. We have use a fixed-effects regression model in order to estimate the influence of several variables on these differences. Preliminary results show the relevance of the educational level of the workforce as well as the significance of the labour market

situation (good conditions of the labour market -a high employment rate or a small proportion of fixed-term contracts- contribute to reduce the self-employment ratio).

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Annex

Table A.1. Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Self-employment rate	323	0,186	0,025	0,116	0,253
Activity rate	323	0,512	0,036	0,422	0,631
Female activity rate	323	0,366	0,056	0,201	0,535
Employment rate	323	0,429	0,052	0,319	0,574
Unemployment rate	323	0,163	0,062	0,045	0,346
Long-term unemployment	323	0,495	0,114	0,160	0,738
Rate of interest	340	8,168	4,664	2,256	15,400
Population under 25	323	0,173	0,025	0,115	0,242
% employment in services	323	0,576	0,083	0,364	0,773
% employment in services (excluding agriculture)	323	0,644	0,068	0,523	0,831
% fixed-term contracts	306	0,304	0,080	0,051	0,464
Beneficiary rate	323	0,512	0,169	0,140	1,123
Educational level (%)					
% workforce with no qualifications	306	0,055	0,049	0,001	0,205
% workforce with primary qualifications	306	0,283	0,097	0,089	0,545
% workforce with compulsory qualifications	306	0,250	0,053	0,151	0,430
% workforce with secondary school certificate	306	0,103	0,026	0,051	0,186
% workforce with professional training	306	0,136	0,055	0,029	0,300
% workforce with university degree	306	0,174	0,044	0,094	0,315
% employment in public sector	306	0,232	0,052	0,126	0,378